

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/12649

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04B10/155 H01S5/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01S H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 060 033 A (BRITISH TELECOMM) 15 September 1982 (1982-09-15)	1-3,5,6, 12-16, 18-21
Y	abstract page 4, line 26 -page 8, line 35 figures 1,2	4,7-10
X	US 5 379 309 A (LOGAN JR RONALD T) 3 January 1995 (1995-01-03)	1,12,18
Y	column 5, line 8 -column 6, line 36 figure 7	4,7-10
Y	US 2002/126345 A1 (CHAPMAN WILLIAM B ET AL) 12 September 2002 (2002-09-12) abstract paragraphs '0031!, '0032! figure 2A	4
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

19 January 2004

Date of mailing of the international search report

06.02.04

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 120 190 A (MIRMAN ILYA ET AL) 19 September 2000 (2000-09-19)	7
A	abstract column 3, line 28 -column 4, line 34 figure 1	11
Y	--- KIM H D ET AL: "A LOW-COST WDM SOURCE WITH AN ASE INJECTED FABRY-PEROT SEMICONDUCTOR LASER" IEEE PHOTONICS TECHNOLOGY LETTERS, IEEE INC. NEW YORK, US, vol. 12, no. 8, August 2000 (2000-08), pages 1067-1069, XP000968561 ISSN: 1041-1135	8-10
A	the whole document	17
Y	--- US 2001/004290 A1 (KIM HYUN DEOK ET AL) 21 June 2001 (2001-06-21)	8-10
A	abstract paragraphs '0057!-'0066!, '0087!, '0088! figures 3,7,8 -----	17

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-3,5,6,12-16,18-21

Independent claim 1 relates to an apparatus comprising an optical transmitter having a resonance wavelength characteristic that varies with the refractive index of the optical transmitter, wherein the optical transmitter receives a narrow band injected wavelength signal from an incoherent light source, a controller to substantially match a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal by changing the refractive index of the optical transmitter and a detector to measure a parameter of the optical transmitter to provide a feedback signal to the controller to determine when the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched.

The features of independent claims 12 and 18 correspond to the subject-matter of claim 1.

Claim 2 depending on claim 1 states that the optical transmitter is a Fabry-Perot laser diode.

1.1. Claims: 3,5,6,13,15,16,19-21

The features of claims 3,5,6,13,15,16,19-21 depending on claims 1, 12 or 18 differ from the subject-matter of claim 2.

2. Claim : 4

Claim 4 depending on claim 1 states that the optical transmitter is a Fabry-Perot laser diode with antireflective coating on one or more facets.

3. Claims: 7, 11

Claim 7 depending on claim 1 states that the controller is a temperature controller that controls the direction and strength of temperature emitted from a thermo-electric cooler so that an average optical power received at the monitor photo diode is maintained at approximately a maximum level.

4. Claims: 8-10

Claim 8 depending on claim 1 states that the apparatus further comprises a wavelength division multiplexer to route the narrow band wavelength to the optical transmitter.

5. Claim : 17

Claim 17 depending on claim 12 states that a previous current that had flown into the optical transmitter is compared with the present current flowing into the optical transmitter to provide a feedback signal to determine when the resonant and the injected wavelength are locked.

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0060033	A	15-09-1982	CA 1182174 A1 EP 0060033 A1	05-02-1985 15-09-1982
US 5379309	A	03-01-1995	NONE	
US 2002126345	A1	12-09-2002	US 2002172239 A1 US 2003016707 A1 AU 6502500 A EP 1214762 A1 WO 0108277 A1 US 6600760 B1	21-11-2002 23-01-2003 13-02-2001 19-06-2002 01-02-2001 29-07-2003
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